TEXAS WATCH

Newsletter of Volunteer Environmental Monitoring Programs in Texas

PD-016/96-4 January 1997

Nonpoint Source Pollution and Texas Watch

Thom McInnis
Texas Watch NPS Projects Coordinator

The Problem

The United States has made tremendous advances in the past 25 years to clean up the aquatic environment by controlling point source pollution from industries and sewage treatment plants. Unfortunately, pollution from diffuse, or nonpoint, sources was not controlled as effectively. According to the Environmental Protection Agency (EPA), nonpoint source (NPS) pollution remains the nation's largest source of water quality problems. It is the main reason that approximately 40 percent of our surveyed rivers, lakes, and estuaries in the U.S. are not clean enough to meet basic uses such as fishing or swimming.

NPS pollution occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, picks up pollutants, and deposits them into rivers, lakes, and coastal waters or introduces them into groundwater. The most common NPS pollutants are sediment and nutrients that wash into water bodies from agricultural land, animal feeding operations, construction sites, and other areas of disturbance. Other common nonpoint source pollutants include pesticides, fertilizers, pathogens (bacteria and viruses), salts, oil, toxic chemicals, and heavy metals. Beach closures, unsafe drinking water, fish kills, and many other environmental and human health problems can result from nonpoint source pollutants. These pollutants not only ruin the beauty and health of clean water habitats but also cost the U.S. millions of dollars each year to protect and restore.

Texas Watch Fights NPS Pollution

Public and private groups, like Texas Watch and its supporting partners and monitors, have developed across the nation and are using NPS pollution prevention and reduction initiatives to help maintain our water quality. Known as best management practices (BMPs), these structural and nonstructural pollution control systems are implemented or installed to reduce and prevent NPS pollution. Structural BMPs include sedimentation ponds, silt fences, and wastewater lagoons, while vegetation buffers, revegetation efforts, and local ordinances and public awareness campaigns are considered nonstructural controls. In Texas, as in other states, water quality monitoring and environmental education activities supported by government agencies, industry, volunteer groups, and schools provide information about NPS pollution and help determine the effectiveness of these management techniques.

Through the diligent efforts of our many monitors and partners, Texas Watch has been actively monitoring for NPS pollution since 1992. In fact, a major portion of our funding is provided through Section 319(h) grants awarded by the EPA. Section 319 of the Clean Water Act provides for national NPS water pollution prevention and control programs that identify water quality problems and

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IN THIS ISSUE...

Letter from Team Leader

An Address to Volunteer Monitors

Eric Mendelman, Texas Watch Team Leader

In talking with monitors across Texas, it is impossible not to notice a sense of relief that the drought has weakened since the summer. The drought of '96 made a lot of folks nervous, not only because we got so little rain, but also because the demand for water in Texas is growing at such an alarming rate. Cities experienced drinking water shortages, water recreation was interrupted, and, as you probably experienced at least once, water quality monitors had no water to sample. As efforts grow to address these water challenges, Texas Watch monitors can rest assured that demand for volunteer monitoring will continue to grow.

The reason for this is that the drought has underscored not only the need to address the state's water quantity needs, but also the need to monitor, protect, and preserve water when it is available. This focus on all water, not just the polluted water, has been catching on quickly among state and federal programs in recent years. From the smallest community to the highest levels of government, a consensus is slowly forming. This consensus is that an inclusive watershed approach is the key to protecting and restoring our environment. In light of this consensus, what are the implications for Texas Watch monitors?

As governments move to watershed protection strategies, their ability to successfully evaluate the success of watershed programs will increasingly depend on the comprehensive and frequent monitoring offered by volunteers. Furthermore, in Texas, funding shortages have driven the TNRCC to focus more on water quality conditions that present the highest risk to human health. This makes it more important for volunteer monitors and other stakeholders in less impacted areas to help develop watershed restoration strategies, monitor the waterways, and build long-term commitments within communities to protect the natural resources.

In 1997 Texas Watch will be working on several levels to support volunteer monitors as they begin to take on more responsibility for their watersheds:

Development of a Texas Watch Internet web page. Texas Watch put its first web page on-line in November (see announcement in this issue). The page currently contains information about the Texas Watch program, current and past newsletters, selected Texas Watch forms and publications, and announcements of upcoming events. In coming months we will add more features, including information about Texas Watch partners and groups, and proceedings from our regional and statewide meetings. By the end of 1997, we hope to have the system ready to send and retrieve volunteer monitoring information.

Integration of volunteer and professional monitoring. In September, Texas Watch formed the TNRCC's first work group to integrate volunteer and professional monitoring. The work group will allow us to direct your monitoring efforts to locations where information is most urgently needed by professional monitors. It will also work to integrate the use of

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NPS Grant Available

TNRCC and the Texas State Soil and Water Conservation Board (TSSWCB) have announced that this February they will be requesting proposals for fiscal year 1998 Nonpoint Source Program (NPS) implementation grants under Section 319(h) of the Federal Clean Water Act.

The objective of the grant is to promote the preparation and implementation of high-quality, goal-oriented work plans for NPS watershed and demonstration projects to improve and protect water quality in targeted priority areas. Section 319(h) grants are awarded to innovative implementation projects that are determined to be most likely to result in documented water quality improvements. Therefore, projects that have already gone through a planning and development phase and are ready for implementation are likely to be most successful in receiving funding.

The TNRCC and TSSWCB anticipate that these federal grant-funds will be available for projects that are implemented in FY 1998.

The statute requires a 40% local match with non-federal funds or in-kind services.

For more information, contact Denise Cullen, TNRCC Nonpoint Source Program at 512/239-4491 or e-mail at: dcullen@tnrcc.state.tx.us ✲

Does Community Education Reduce Water Pollution?

Volunteers Monitor "Paired Watersheds" to Find Out

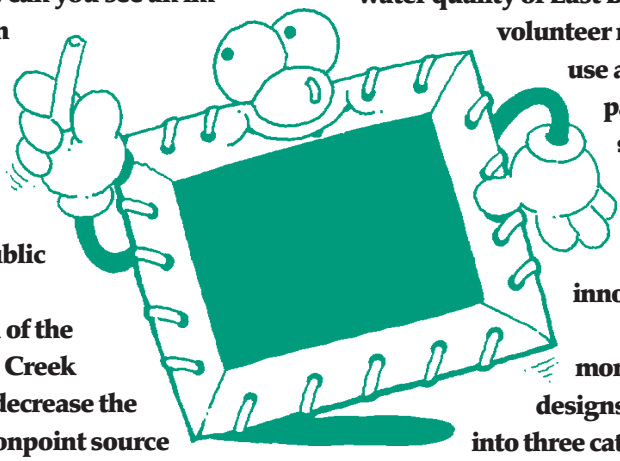
by Joan Drinkwin (formerTexasWatch NPS Project Coordinator)

There's something going on in a small watershed in Austin, Texas, that could answer a big question about how to combat water pollution in the United States. In the East Bouldin Creek Project, volunteer monitors are using a sophisticated "paired watershed" monitoring design to find out whether the community outreach and education programs being employed there are actually improving water quality.

What's new about this approach? First, let's back up and define the problem. What is sporadic and unpredictable, difficult to control, hard to detect using traditional water chemistry monitoring techniques, and devastating to aquatic life? You've got it—nonpoint source pollution. Nonpoint source pollution is carried into surface and groundwaters by runoff from rain, snow, lawn sprinklers, and car washes. The exact place it comes from can't be pinpointed. Illegal dumping is also considered nonpoint source pollution because, even though it may come from a specific location, or "point," that location is hard to track down.

Now, let's talk about solutions—the techniques, or tools, used to control and prevent nonpoint source pollution. These tools, which are also called "best management practices" (BMPs), fall into two categories: structural and nonstructural. Structural BMPs, as the name implies, are physical structures, such as sediment fences placed around construction sites to capture sediment before it reaches streams and lakes, or sedimentation and filtration ponds built next to highways to trap oil and grease in road runoff. Structures like this usually control rather than prevent nonpoint source pollution. By contrast, nonstructural BMPs, such as land use ordinances and community education programs, are usually designed to prevent nonpoint source pollution from happening in the first place. Traditionally, government agencies have preferred structural BMPs, which give them something tangible to point to. As David Pimentel, former director of the Travis County Environmental Office, puts it, "Agencies have tended to shy away from nonstructural approaches, like community education, which they view as 'squishy.'"

All right, now we can get back to the monitors in the East Bouldin Creek watershed. The big question they're trying to answer is: Do these nonstructural tools really work? In other words, can you see an improvement in water quality as a direct result of community outreach and public education?



The goal of the East Bouldin Creek Project is to decrease the amount of nonpoint source pollution reaching East Bouldin Creek, which the City of Austin Environmental Conservation Services Department identified as one of the most polluted creeks in urban Austin. To achieve this goal, an array of nonstructural prevention activities will be employed throughout the watershed. Local citizens, students, and businesses will adopt creek sections and carry out such projects as revegetating stream banks for habitat restoration and erosion control; placing signs to identify the creek and watershed (e.g., "Welcome to East Bouldin Creek Watershed"); and stenciling storm drains to discourage illegal dumping of oil and yard waste. In addition, a local elementary school class is developing a watershed education program, which the students will present at other schools throughout the watershed. The program will include a teacher's handbook and a three-dimensional model of East Bouldin Creek watershed, complete with local landmarks.

To determine whether all these activities are actually improving the water quality of East Bouldin Creek, volunteer monitors will use an innovative paired-watershed monitoring design. So what makes this design innovative? Traditional monitoring designs fall roughly into three categories: ambient monitoring, upstream-downstream monitoring, and before-and-after monitoring. Ambient monitoring is generally used to

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Storm Drain Stencils Available!

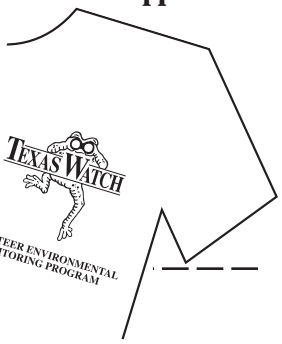
Pulling trash from a river is one way to clean up our waterways, but students at El Paso's Bel Air High School are taking another approach. They're going straight to the source to prevent water pollution. Armed with stencils loaned to them by the TNRCC, students in Bel Air's Law Enforcement Club painted storm drains near their school with the message "Dumping Here Pollutes Our Water."

These students are the first in the state to take advantage of a new pollution prevention initiative offered by the TNRCC's Clean Texas 2000 program. As the most common route for NPS pollution is the network of storm drains that carry excess rain water from streets directly into waterways, the storm drain stencils and how-to manuals are being offering to civic and environmental groups across the state to help prevent the problem.

To raise public awareness about NPS pollution and its causes, storm drain stenciling efforts like the one at Bel Air High School have sprung up in communities across the country. Thanks to a pollution prevention grant awarded by the Environmental Protection Agency, Clean Texas 2000 is now able to make these storm drain stenciling materials available to volunteer groups across the state. Copies of *Storm Drain Stenciling: A Manual for Communities* are available free of charge and mylar stencils with the message "Dumping Here Pollutes Our Water" are available for checkout at each of the l offices across ıformation on location of the TNRCC regional office nearest you, contact Helen Lowman with the TNRCC's Clean Texas 2000 program at 512/239-3156 or e-mail at hlowman@tnrcc.state.tx.us. ✲

New Texas Watch T-Shirts Available

Texas Watch has a new t-shirt available to any interested volunteers, partners, or friends of Texas Watch. The shirt features the Texas Watch logo and "Volunteer Environmental Monitoring Program" printed in green on the upper left breast of an ash (fleck gray) 100% cotton BEEFY-T. The shirts are available through the mail at $8.50 each for large and X-large sizes and $9.50 for XX-large. Cost includes shipping and handling, and shirts can be ordered in any quantity. Orders for 25 or more shirts also have the option of being customized with an additional logo/design/name on the back and/or sleeves for an extra $0.75 to $1.50 per shirt (call for details). To order, return the attached form, with payment, to the indicated address.



TEXAS WATCH T-Shirt Order Form

Name: _____ **Phone:** _____

Shipping Address: _____

City/State/Zip: _____

Quantity

_____ Large	@ $ 8.50 ea.	$_____
_____ X-Large	@ $ 8.50 ea.	$_____
_____ XX-Large	@ $ 9.50 ea.	$_____
_____ *Custom Design	@ $ _____ ea.	$_____

TOTAL ENCLOSED

$

**For custom orders of 25 or more call Stacy Suits at 800/995-9476 for details before ordering. Make Checks / Money Orders (no cash) payable to: ACE Printing (Allow 4-6 weeks delivery) Return payment and order form to: ACE PRINTING PO BOX 13522 AUSTIN, TX 78711*

An Address to Volunteer Monitors *(Continued from page 4)*

your data alongside professional data, where appropriate.

Development of new monitoring programs and protocols. **Texas Watch is exploring new monitoring opportunities for volunteers. Currently, we are piloting biological monitoring in several project areas statewide. Our technical team has also produced a watershed survey for use by anyone wishing to know how to document conditions in the watershed.**

Quality Assurance guidelines for volunteer groups. **For volunteer groups not operating under the Texas Watch Quality Assurance program, Texas Watch will be producing guidelines for groups to produce their own quality assurance document. This will enhance the program of any group that desires to share its data with professional water quality monitors and managers.**

Targeting locations where volunteer monitoring can help. **There are numerous locations in the state where monitoring information is lacking, there is doubt about existing data quality, or there is little or no information, but a high level of public concern. Texas Watch will be working with the agency's professional monitoring team to identify these locations. We plan to communicate these locations to you through the newsletter, our regional and statewide meetings, or on our web page.**

In this newsletter issue, several articles illustrate how volunteers, through their commitment to quality data, are becoming important participants in local water quality management. In coming months, we will hold our annual Texas Watch Meeting of the Monitors and two additional regional meetings. Please refer to this and future newsletters for meeting details. I look forward to seeing you there and hearing more about how you and your community are making a difference in the environment.

In October, Eric Mendelman accepted the position of Texas Watch team leader. Having been with the program since its beginning in 1991, Eric is honored to play a more significant role in supporting the monitoring and environmental protection efforts of Texas Watch volunteers. Gayla Campbell, the former Texas Watch team leader, has intensified her role working on the quality assurance and quality control aspects of the program. Gayla's work as Texas Watch team leader resulted in EPA approval of the first Texas Watch Quality Assurance Plan, the expansion of the Texas Watch program into NPS issues, the development of stormwater and biological monitoring, and the development of a watershed survey. Texas Watch's growth, effectiveness, and recognition as a national model is owed in large part to Gayla's hard work and dedication. ⁂

Nonpoint Source Pollution and Texas Watch *(Continued from page 1)*

develop and implement management strategies to address them. These funds are used to support programs and projects that have the greatest likelihood of producing early, demonstrable benefits to water quality and encourage effective performance and cooperative institutional relationships. Other priorities include implementing innovative practices, protecting ecologically significant waters, and controlling urban storm water, which is not subject to federal permit requirements.

Texas Watch administers four and assists on another of the more than 60 Section 319(h) grants currently in progress at the Texas Natural Resource Conservation Commission (TNRCC). These grants charge Texas Watch staff, partners, and citizen monitors with the responsibility of monitoring our streams, lakes, and bays for NPS pollution while educating communities about their detrimental environmental and health effects. Texas Watch monitors accomplish this through activities that include educational outreach, storm drain stenciling, water quality monitoring, and regional and statewide workshops and conferences.

Although Texas Watch supports statewide monitoring activities, currently Texas Watch staff are focusing on recruiting and training monitors in the specific 319(h) project areas. One of these projects is the East Bouldin Creek Best Management Practices Implementation and Evaluation Project taking place in Austin, and profiled in this issue's accompanying article "Does Community Education Reduce Water Pollution?" In upcoming editions of the Texas Watch newsletter, we will take a closer look at the other 319(h) project areas and activities in which Texas Watch is involved.

(Author's note: Portions of this article were obtained from EPA Document 841-F-96-004A and the TNRCC NPS Program Document, "Summaries of Projects Funded under the Federal Clean Water Act, Section 319(h) for Nonpoint Source Pollution Prevention and Abatement.") ⁂

In The News

West Texas Watch Holds Training

(information taken from the Ballinger Ledger, Aug. 1, 1996)

The first West Texas Watch training was held this July at the Norton Community Center. Participants included youth and adults from the Runnels Country 4-H Clubs as well as Tom Green and Sterling Counties. Almost two dozen volunteers participated in Phase I training, learning how to sample water, assess water quality, and collect data using water test kits. Phase II volunteers spent the afternoon at Flat Rock Crossing in Norton practicing the skills they learned in Phase I.

Youth and adults represented Miles, Rowena, Norton, Ballinger, Winters, Sterling City, and San Angelo. The event was sponsored by the Upper Colorado River Authority (UCRA) as lead partner, TNRCC and Runnels Country 4-H. Eric Mendelman with the TNRCC Texas Watch program and Ellen Groth with UCRA trained the volunteers.

Volunteers will be completing the final phase of their certification training within the coming month. The final phase involves testing at a site chosen by the volunteers, under supervision of a Texas Watch Trainer. Sites will be monitored monthly and tested by the volunteer using Texas Watch Kits provided by the UCRA. The data that are collected are sent to the UCRA and TNRCC for compilation.

Anyone interested in learning more about the West Texas Watch / Citizens Monitoring Program may contact Ellen Groth at the UCRA office at 915/655-0565.

The Upper Colorado River Authority is one of the oldest Texas Watch partners, submitting its first monitoring plan in November 1992. During 1993, the UCRA worked with San Angelo-area high schools to establish volunteer monitoring as an educational resource. From 1994 through 1995, training and follow-up were interrupted by organizational changes at UCRA.

By the end of 1995, however, the UCRA board expressed a strong interest in revitalizing Texas Watch.

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Brent Jacob and other member of the Runnels, Tom Green, and Sterling County 4-H Clubs participate in the first "West

Texas Watch on the World Wide Web

Texas Watch's web page is now up and running on the Internet. Our page currently contains general information about the Texas Watch program; current and past issues of the newsletter along with an option to subscribe; many of our current Texas Watch forms and publications available for downloading and printing; announcements of upcoming events, including the annual Meeting of the Monitors and regional workshops; and a link to our e-mail to leave your questions or requests. In coming months, we will be adding more features, including information and links to Texas Watch partners, and summaries of proceedings from our regional and statewide meetings. By the end of 1997, we hope to have the system ready for you to send and retrieve volunteer monitoring information. You can access our page under the TNRCC's web site at http://www.tnrcc.state.tx.us/water/wpa/rea/txwatch.htm.

Sites We Like

Besides our own site, Texas Watch has come across some other web pages that offer valuable information and resources for volunteer monitors. Check out the Texas Natural Resource Conservation Commission's home page at http://www.tnrcc.state.tx.us for a variety of information regarding the agency and its role in environmental issues in Texas. All the other sites listed this month are provided by the U.S. Environmental Protection Agency, but as we identify others we will let you know!

U.S. Environmental Protection Agency

http://www.epa.gov/

The EPA home page provides access to a variety of environmental information and publications. Links are provided to assorted "You and Your Environment" topics, as well as a "Collection of Resources."

EPA Office of Wetlands, Oceans, and Watersheds

http://www.epa.gov/owowwtr1/general/

This web page provides information about volunteer monitoring, NPS pollution solutions, estuaries and oceans, wetlands, and watersheds. Also includes a list of environmental hotlines, and highlights of the Watershed '96 national conference.

The Volunteer Monitor Newsletter

The National Newsletter of Volunteer Water Quality Monitoring

http://www.epa.gov/OWOW/volunteer/vm_index.html

Offers current and past issues of this informative and interesting national newsletter.

Surf Your Watershed

http://www.epa.gov/surf/

Use "Surf Your Watershed" (still under construction) to find environmental information and maps for your community, watershed, or state of interest. It is designed for citizens and decision-makers across the country who are active and interested in the watershed-based environmental movement. ✲

Quality Assurance Corner

Duplicates...Duplicates

Have you ever noticed that box on your data sheet just to the right of where you write in the water temperature and conductivity? This often-overlooked part of the data sheet is where quality assurance duplicates should be written every three months. Duplicates are performed to ensure that your samples are taken in a reproducible manner with a reasonable amount of precision. While all Texas Watch monitors do dissolved oxygen duplicates every time they monitor, the other tests (water temp, conductivity, pH, Secchi disk and salinity) only need to be duplicated once every three months.

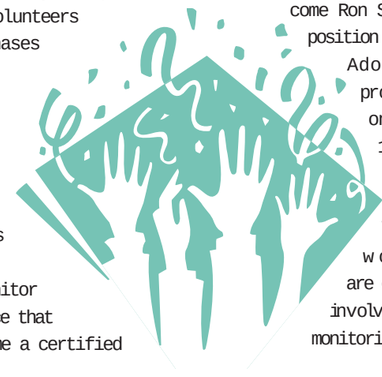
To make it easier for you, the new data sheets are preprinted with the months in which the duplicates should be done. If you are still using old data sheets, just remember to do duplicates in March, June, September, and December.

By repeating the tests, you are putting in a little extra effort to make sure you are getting good results, and that your equipment is working properly. You will find that duplicates really do not take much more time to run and they help to verify the quality of your data. So, you see, good things really do come by doing the same thing twice. b

On the Move

Bon Voyage, Adios and Farewell

Texas Watch would like to extend a fond farewell to Nivra Kelley, coordinator of the Center for Coastal Studies' Adopt-a-Wetland program. Nivra has been an integral part of the Texas Watch program, conducting training and quality control sessions, and promoting environmental awareness through a number of activities. Since January 1994, she has trained 265 volunteers in the first two phases of Texas Watch in areas such as Brownsville, El Paso, Orange, Dallas and even Matamoros, Mexico. Nivra was first certified as a water quality monitor in June 1993. Since that time she has become a certified monitor, trainer, and quality control officer, as well as a certified monitor and trainer in the Urban Watch program. We will all miss Nivra and wish her well in her new pursuits.



Welcome Aboard

Texas Watch would like to welcome Ron Smith to his new position as coordinator of the Adopt-a-Wetland program. Ron started on September 13, 1996, and became a certified monitor on September 25. We all look forward to working with Ron and are excited to have him involved with volunteer monitoring. ✲

Texas Watch Participates in Clean Cities 2000 Conference

More than 180 representatives of CLEAN CITIES 2000 member communities and potential member cities gathered for the first time this October to exchange ideas, develop new partnerships and determine what works when it comes to developing cost-effective environmental programs. Held in Austin, the first CLEAN CITIES 2000 Annual Meeting and Conference allowed city representatives to meet and examine successful city pollution prevention and waste reduction programs as possible examples for their own communities.

CLEAN CITIES 2000 is a statewide pollution prevention program of the TNRCC that focuses on partnerships and voluntary cooperation in developing comprehensive environmental plans. As members of the TNRCC's CLEAN CITIES 2000 program, 67 communities have developed self-tailored plans that last year saved $10 million in waste disposal costs. These plans promote not only recycling at home and at work, but also composting yard trimmings and buying recycled-content products.

Texas Watch participated in the conference by facilitating a session that was especially valuable to member cities which have the added responsibility of reducing air and water pollution. Team Leader Eric Mendelman led discussions with panel members Brian Camp from the City of Fort Worth, Patricia Bradbury of Oyster Creek CLEAN in Sugar Land, and Steven Hubbel with the LCRA's Colorado River Watch Network that provided examples and insight into the community benefits of volunteer environmental monitoring. Texas Watch can also help communities meet CLEAN CITIES 2000 requirements through implementation of water quality monitoring and storm drain stenciling programs.

Many successful "City Action Plans" were highlighted at the conference including the East Texas town of Lufkin, where more than half the households regularly participate in curbside recycling, saving the city nearly $180,000 in land fill disposal costs. In nearby Crockett, where citizens adopted a residential and commercial recycling ordinance after facing rising disposal costs, the average per capita disposal rate is only 1.5 pounds per day compared to the state average of 6 pounds.

Other small communities — such as the coastal towns of Lake Jackson, Clute, Quintana, Surfside Beach and Sweeny — have realized that it makes sense to consolidate their materials to create a better market for their recyclables. This Brazoria County cluster now shares a collection facility serving five counties.

The city of San Antonio, besides operating the largest curbside recycling program in Texas, has formed an air quality task force and an aggressive ozone pollution prevention plan successful in maintaining the area's air quality. North Richland Hills in the Dallas area has also created an ozone reduction program that is recognized as one of the best in the nation. And in neighboring Fort Worth, water quality is addressed with an Urban Watch volunteer water quality monitoring program that has received national attention.

All Texas cities should take a close look at the goals of CLEAN CITIES 2000. Remember, what's right for the environment has proven to be just as right for the economy — and our communities. For more information on the TNRCC's CLEAN CITIES 2000 program contact Helen Lowman at 512/239-3156 or E-mail at hlowman@tnrcc.state.tx.us. ✲

Texas Watch panel members Brian Camp, Patricia Bradbury and Steven Hubbell answer questions at the Clean Cities 2000 Conference in Austin.

PROFILES & PERSPECTIVES

Texas Watch Profiles

Continuing our series of profiles on the new Texas Watch team, this month we'll introduce two more new Texas Watch team members, as well as a two-year veteran of the program.

Greg Bryant is the most recent addition to Texas Watch, coming to the program last August as the new communications coordinator. His responsibilities include coordination of the Texas Watch newsletter and web page, along with development of other educational and public awareness materials. Greg will also serve as communications liaison between Texas Watch, the general public, educators, and the media. A graduate of the University of Texas with a bachelor of science in communications, he has made his home in Austin for the past 27 years.

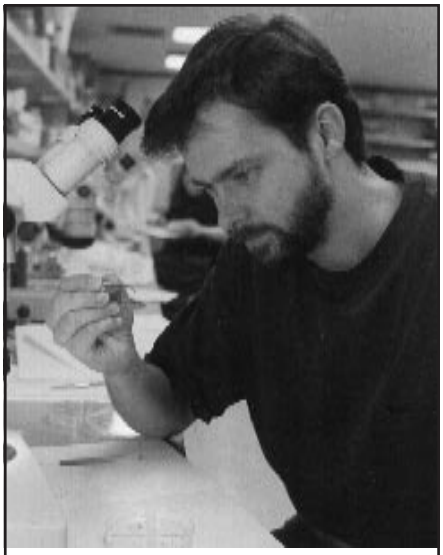
Communications Coordinator Greg Bryant checks pH during a phase III training at the TNRCC's Walnut Creek site.

Although the newest member of the team, Greg brings with him more than 12 years of experience with the TNRCC and its predecessor agencies in various communications and outreach roles. Having served most recently as an environmental education coordinator for the agency, he has been involved in the statewide "Teaching Environmental Sciences" training courses, and acted as executive producer for *Eye On Earth*, a live 30-minute TV program broadcast to schools statewide.

Greg's hobbies include water sports and mountain biking, but his real after-hours passion is snow skiing. Having skied all over North America in the last 10 years, this winter he and his wife Jackie will visit Europe and ski the Alps of northern Italy. Eventually they hope to travel to the Southern Alps of New Zealand, and trade the Texas summer for a Kiwi winter, and ski in July.

Greg Rogers began working with Texas Watch in March of 1995 as one of the team's aquatic scientists and nonpoint source project specialist. He assists in the implementation of A319" grant commitments in Corpus Christi, Austin, and Beaumont; develops biological monitoring protocols; and initiates quality assurance project plans for the Texas Watch volunteers.

Greg was born in the California desert, but came to Texas as soon as he could. Finding the streams and rivers of the Lone Star State irresistible, he studied them until he received his B.S. degree in aquatic biology from Stephen F. Austin State University. He graduated from the same institution with an M.S. degree in aquatic ecology, writing his thesis on the fish communities of streams located in a rapidly growing oil field.



Aquatic Scientist Greg Rogers identifies benthic macroinvertebrates as part of the biological monitoring program.

In his spare time, he enjoys playing guitar, reading, hiking and taking Deb, his little black dog, anywhere he can get away with it.

Tina Dacus came to Texas Watch as a summer intern, but with the departure of Anne Rogers has stepped in and taken over the responsibilities of the volunteer coordinator. She holds a B.A. in philosophy and political science from Baylor University, and is a masters candidate in natural resource development, focusing on water issues, at Texas A&M University. Tina has been extremely busy these past few months, working in the office three days a week and commuting to and from College Station on the other two days. Tina is excited about concluding her master's studies and returning to the office full time, having averaged more than 800 miles per week in driving time.

Tina had prior experience with Texas Watch when she interned with the Brazos River Authority (one of our very active and dedicated partners) in Waco, where she saw first-hand the success of Texas Watch at the regional level. Tina likes drawing, traveling, playing pool, authentic Indian cuisine, and speaking with our many volunteers and partners on the phone. ✲

UP & COMING EVENTS

Texas Watch Annual Meeting of the Monitors

March 21-23, 1997 Austin, Texas

The Sixth Annual Texas Watch Meeting of the Monitors will be held March 21-23, 1997, in Austin at the J.C. Thompson Conference Center, near the LBJ Library and University of Texas campus. The annual event invites Texas Watch monitors, partners, staff, and other interested individuals from across the state to share information about their monitoring activities and water quality issues. This year's focus is on nonpoint source pollution and will include workshops on:

Defining the Boundaries of Your Watershed
Analyzing Your Data
Community Solutions to NPS Pollution
Aquatic Plant Identification in the Field
Environmental Monitoring and the Internet
Starting a Storm Drain Stenciling Program
Colorado River Watch Monitors' Russian Visit
Effective Data Presentation
Meet the EPA, USGS, TPWD, & Other Agencies
How NPS in your Watershed Effects Texas Coastal Waters
Environmental Mentoring Programs
Education & Teacher Resources
Lessons in River Ecology
Asking For and Getting Corporate Support
Evaluating the Success of Your Program

A registration and information flyer will be mailed to all volunteers and partners by late January. If you have not received yours by then, please contact Texas Watch at 512/239-4720 or e-mail at txwatch@tnrcc.state.tx.us to get a copy.

Second Annual Region 6 NPS Conference

March 3-5, 1997 Austin, Texas

The Second Annual Region 6 Nonpoint Source Conference is being held in Austin, March 3-5, 1997, at the Omni Austin Hotel Southpark. This year's theme is "Protecting Our Water Resources: Pointed Solutions to Pointless Problems." According to James Moore, the assistant executive director of the hosting organization, the Texas State Soil & Water Conservation Board, "This conference will be an excellent opportunity for the states in Region 6 to cooperatively continue their efforts in improving their nonpoint source programs."

Items of interest to both the rural and urban communities will be offered, with sessions oriented toward exploring the diversity of the ecosystems of the region and the diverse mechanisms being used to address NPS pollution. New success stories will be shared, partnership mechanisms will be explored, and profitable projects will be highlighted. A field trip on the afternoon of the third day will allow participants to see some the successes in central Texas.

For more information, contact the Texas State Soil and Water Conservation Board at 817-773-2250. Space is limited, so for hotel reservations call 800-THE-OMNI or 512-448-2222 and indicate that you are attending the 2nd Annual Region 6 Nonpoint Source Conference.

Communities Working for Wetlands

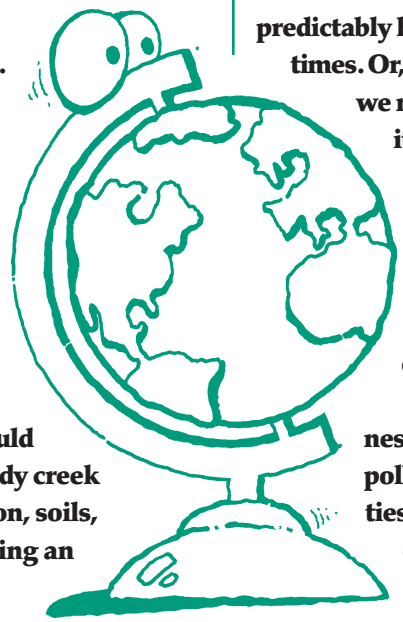
May 7-9, 1997, Alexandria, Virginia

Celebrate American Wetlands Month by attending the first American Wetlands Conference. *Communities Working for Wetlands* will be a gathering of citizens, educators, students, community groups, business representatives, state and local agencies and other parties interested in community-based wetlands conservation. The conference will provide an opportunity for sharing experiences and expanding wetland knowledge. Program topics will include building broad coalitions, wetland policy, education and outreach, and science for citizens. Registration fees are $75 for students, $165 for nonprofit/government, and $285 for all other categories if received by March 15, 1997. Special conference room rates and airline fares are also available. For more information, call Terrene Institute at 800/726-4853 or e-mail at terrene@gnn.com.

Community Education *(Continued from page 3)*

gather baseline data and determine long-term trends; it is not used to determine whether pollution prevention or control tools are effective in the short term. In the upstream/downstream design, sites are chosen to bracket a specific location of interest (such as a structural BMP). This monitoring design answers the question: Is water quality downstream from the structure better than upstream? One problem with this design is that with nonstructural methods there is no specific location to bracket. In the before-and-after design, a site is monitored before and after something is done to control or prevent pollution. Unfortunately, weather plays such an important role in nonpoint source pollution, and often results are masked by natural variation in rainfall. For example, if you install a structural BMP and then observe an increase in nitrates, you might conclude that the structure is not working. In reality, though, you might be seeing the increase because it has been raining more since the structure was built than it did during your "before" monitoring.

The paired-watershed monitoring design tries to avoid or minimize the above problems by comparing the study creek with one or more control creeks. The control creek(s) should be similar to the study creek in size, slope, location, soils, and land cover. During an initial "calibration" phase, which precedes any pollution prevention activities, the study and control creeks are monitored over a period of time to determine the relationship of water quality among them. Then, during the "treatment" phase, pollution control and prevention measures are applied only to the study creek; meanwhile, regular monitoring of both study and control creeks continues. The paired-watershed study design does not require that the watersheds be the same, but only that water quality in one creek should predict water quality in the others.



In the East Bouldin Creek Project, volunteers will monitor East Bouldin Creek (the study creek) along with two control creeks—Blunn Creek and Harper's Branch. Since the three creeks are close together, weather is the same for all of them. The three watersheds are adjacent to one other, are similarly developed, and are all about the same size, so we expect that water quality in the three creeks will be related. For example, the level of dissolved oxygen in Blunn Creek may not be the same as that of East Bouldin Creek, but it should be predictably higher or lower at all times. Or, to take another example, we may find that conductivity in the creeks changes at the same rate relative to rainfall. Initial analysis of historical data indicates that the three creeks' water chemistry is related.

Evaluating the effectiveness of nonpoint source pollution prevention activities such as community education is long overdue. This project will help to determine whether community outreach and public education really improve water quality. If they do, then more funding for such programs is justified. If they do not, then other innovative ways to combat nonpoint source pollution still need to be tried. Using volunteers to collect the water quality data is an important aspect of the project. Since intensive monitoring projects conducted by professionals can be very expensive, demonstrating that volunteers can conduct such a study will greatly enhance our ability to monitor what works against urban nonpoint source pollution.

East Bouldin Creek Update

Since the original publication date of this article, the East Bouldin Creek project has completed the calibration phase with the aid of 31 Texas Watch volunteers, and the volunteers monitoring with the city of Austin's Water Watchdog program. The project has now moved into the treatment phase. The nonstructural BMP's, such as storm drain stenciling, streambank revegetation, and other community activities are currently being implemented in just the East Bouldin Watershed. Monitoring activities will continue, and in future issues we will revisit the project to determine what impacts the community projects have had on the water quality of East Bouldin Creek.

Reference

U.S. EPA. "Paired Watershed Study Design." EPA Office of Water. An 8-page fact sheet. Free; available from NCEPI, P.O. Box 42414, Cincinnati, OH 45242; fax 513/489-8695. Ask for publication number 841-F-93-009.

(Portions of this article first appeared in the Fall 1995 issue of "The Volunteer Monitor, the National Newsletter of Volunteer Water Quality Monitoring," and are reprinted with their permission.) ✲

West Texas Watch *(Continued from page 6)*

As a result, two UCRA representatives, Ellen Groth and Sarah Ortiz, attended the 1996 Meeting of the Monitors and the Annual Partners Meeting in April 1996. Ellen and Sarah returned to San Angelo armed with information and motivation. Within a few months, Ellen completed her Trainer Certification and began training volunteers in the area. West Texas Watch was born, and it is now one of the most enthusiastic and well-organized monitoring programs in the state. Texas Watch salutes Ellen and Sarah for their hard work, and commends the entire UCRA board for its support of volunteer monitoring

Robby and Jane Cook review water quality monitoring procedures during Texas Watch Phase I training at the Norton Community Center.

Let Us Know!

If a volunteer monitoring activity or event makes the news in your area, Texas Watch wants to know! Please clip or copy any local newspaper articles and send them to Texas Watch for possible use in this newsletter. Also, if you hear a story or announcement on TV, please send us a brief summary of the feature along with the air date and station call letters. Send clippings or story information to Greg Bryant, TNRCC, Texas Watch / MC-150, PO Box 13087, Austin, TX 78711-3087, and we'll see if we can get your activity "In the News." ✲

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WATER PLANNING &
ASSESSMENT DIVISION/MC 150
TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
PO BOX 13087
AUSTIN TX 78711-3087